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EXAMINER	
MERED, HABTE	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/706,724	RAMPRASHAD, SEAN ANTHONY	
	Examiner	Art Unit	
	HABTE MERED	2474	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/29/2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-14,17-26,29-31 and 35-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-14,17-26,29-31 and 35-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11/12/03* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on 10/29/09 has been entered and fully considered.

2. Claims 1, 4-14, 17-26, 29-31, and 35-42 are pending. Claims 1, 14, 26, and 31 are the base independent claims.

3. Applicant's Declaration under 37 CFR 1.131 submitted on 10/29/09 is acknowledged.

Response to Arguments

4. Applicant's arguments based on the Declaration under 37 CFR 1.131 that the invention was conceived on or before 9/1/2003, see Remarks, filed on 10/29/09, with respect to the rejection(s) of all claim(s) under U.S.C. 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of IEEE publication Choi et al "IEEE 802.11e Contention-Based Channel Access (ECF) Performance Evaluation" published on 5/11-12/03.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claims 1, 4, 10, 11, 14, 17, 23, 26, 27, 29, 31, and 35-42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ngo (US 6, 798, 838 B1) in view of Choih et al (Choi et al. , "IEEE 802.11e Contention Based Channel Access (ECF) Performance Evaluation", IEEE, 5/2003).

Regarding **claim 1**, Ngo'838 discloses a method of processing data streams in a contention-based WLAN system **(Ngo'838 states in Column 5, Lines 4-12 that the network shown in Figure 1 is an IEEE802.11 compliant WLAN)**, the method comprising:

(A) generating two or more sub-streams corresponding to a first data stream **(in Figure 2, Ngo'838 shows for the input video that corresponds to a first data stream and the output of the layered source encoder generates at least 4 sub-streams in Figure 2)**, wherein the two or more sub-streams comprise a base sub-stream and at least one enhancement sub- stream **(In Ngo'838's Figure 2, output of element 211 is a base sub-stream and output of elements 212..214 generate N enhancement sub-streams)**;

(B) assigning priority to each of the two or more sub-streams, wherein at least two of the base and enhancement sub-streams have different priorities **(Ngo'838 in Column 5, Lines 50-55 unequivocally states that the base layer and the enhancement layers are assigned priorities and the priorities are distinct)**; and

(C) transmitting data corresponding to each of the two or more sub-streams based on the assigned priority **(Ngo'838 shows in Column 6, Lines 9-15 that the transmitter controller 240 in Figure 2 uses the transport priority settings 250 shown in Figure 2 to transmit data from each sub-stream)**.

Ngo'838 fails to disclose a method wherein the contention-based WLAN system confirms to an IEEE 802.11e standard and supports a quality of service (QoS) facility; and the step of assigning comprises assigning to said at least two of said base and enhancement sub-streams QoS parameter sets corresponding to at least two different access categories of the IEEE 802.11e standard.

However, the above mentioned claimed limitations are well known in the art as evidenced by Choi'IEEE. In particular, Choi'IEEE discloses a method wherein the contention-based **(i.e. See Figs. 1 and 2 both Contention and Contention Free Period supported in the WLAN)** WLAN system confirms to an IEEE 802.11e standard **(See Page 1151 1st Column Section 1 1st paragraph and abstract)** and supports a quality of service (QoS) facility **(See Page 1152 – Column 2, Section III, EDCF provides a quality oF service facility)**; and the step of assigning comprises assigning to said at least two of said base and enhancement sub-streams **(i.e. any traffic stream is categorized into one of the four access categories 0–3 corresponding to 802.11e standard based on the priority/traffic category info in the MAC SAP – See Table II)** QoS parameter sets **(i.e. Page 1152 2nd column indicating CWmin, CWmax, TXOP as QoS parameter sets for each access category)** corresponding to at least two different access **(i.e. video, voice, audio – Figs. 2 and 3)** categories of the

IEEE 802.11e standard **(Choi'IEEE shows in Page 1153 1st Column and in Fig. 3 that any stream originating or terminating at an access point or station in a 802.11e compliant WLAN is mapped to an 802.11e access category based on the priority/traffic category info derived from the MAC SAP . Base and enhanced sub-streams are just streams as taught by Ngo'838 and can be assigned to any 802.11e access category along with the associated QoS parameters as shown in Figs. 2 and 3 and Table 1)**.

In view of the above, having the method of Ngo'838 and then given the well established teaching of Choi'IEEE, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Ngo'838 as taught by Choi'IEEE, since Choi'IEEE clearly states on page 1151, 1st Column, Section I, paragraphs 1-3 and the absract that the benefit of complying to 802.11e standards is that it provides QoS based traffic control in the MAC layer and further states that all 802.11 WLANs (i.e. including Ngo'838's 802.11a WLAN) are evolving to support QoS using QoS enabled MAC called 802.11(e). It should be clear that 802.11e is a MAC level enhancement of IEEE 802.11a (and b) and therefore Ngo'838's invention can be modified by Choi'IEEE disclosure to obtain end-to-end QoS in the network.

Regarding **claim 4**, Ngo'838 discloses a method wherein the first data stream **(See Figure 2, input video stream)** is a hierarchical stream and step (A) comprises partitioning the hierarchical stream based on the hierarchy of the stream to produce the two or more sub-streams **(In Ngo'838's Figure 2, output of element 211 is a base**

sub-stream and output of elements 212..214 generate N enhancement sub-streams and Ngo'838 explains the hierarchy of the sub-streams in Column 1, Lines 30-40).

Regarding **claim 10**, Ngo'838 discloses a method wherein step (B) comprises, for each of the two or more sub-streams, selecting parameters **(Ngo'838 shows the parameters in Table II)** of a corresponding QoS parameter set **(In Column 6, Lines 48-67 and Table II Ngo'838 shows selecting different QoS parameter set for different sub-streams or layers)**.

Regarding **claim 11**, Ngo'838 discloses a method wherein further comprising: (D) generating two or more sub-streams **(Figure 3, elements 331 to 334 are sub-streams generated from the received signal 310)** corresponding to the transmitted data **(Figure 3, signal 310 is the transmitted signal received by the receiver 305)**; and (E) processing the sub-streams of step (D) to generate an output data stream corresponding to the first data stream **(the received signal 310 of Figure 3 corresponds to the output of the transmitter 230/235 in Figure 2 which in turn corresponds to the input video of Figure 2 which was identified as the first data stream in claim 1. See Ngo'838 Column 7, Lines 30-67 for detailed explanation)**.

Regarding **claim 14**, Ngo'838 discloses at a transmitting station **(Figure 2 shows a transmitting station)** in a contention-based WLAN system **(Ngo'838 states in**

Column 5, Lines 4-12 that the network shown in Figure 1 is an IEEE802.11 compliant WLAN), apparatus adopted to (any appropriate structure in the prior art can be modified and adopted to meet the claimed limitation) process data streams, the apparatus comprising :

(A) a device **(Figure 2, element 230 layered source encoder)** adopted to **(i.e. element 230 can be modified to generate sub-streams as "adopted to" is not a positive recitation)** generate two or more sub-streams corresponding to a first data stream **(in Figure 2, Ngo'838 shows for the input video that corresponds to a first data stream and the output of the layered source encoder generates at least 4 sub-streams in Figure 2)**, wherein the two or more sub-streams comprise a base sub-stream and at least one enhancement sub- stream **(In Ngo'838's Figure 2, output of element 211 is a base sub-stream and output of elements 212..214 generate N enhancement sub-streams)**;

(B) a controller **(Figure 2, element 240)** coupled to the transmitter **(Figure 2, elements 230 and 235)**, wherein the transmitter is adapted to (any appropriate structure in the prior art can be modified and adopted to meet the claimed limitation) transmit data corresponding to the two or more sub-streams **(see output of mux 220 feeding into transmitter 230/235 in Figure 2)** and the controller is adopted to (i) assign priority to each of the two or more sub-streams, wherein at least two of the base and enhancement sub-streams have different priorities **(Ngo'838 in Column 5, Lines 50-55 unequivocally states that the base layer and the enhancement layers are assigned priorities and the priorities are distinct)**; and (ii) apply sub-stream data to

the transmitter based on the assigned priority **(Ngo'838 shows in Column 6, Lines 9-15 that the transmitter controller 240 in Figure 2 uses the transport priority settings 250 shown in Figure 2 to transmit data from each sub-stream)**.

Ngo'838 fails to disclose an apparatus wherein the contention-based WLAN system confirms to an IEEE 802.11e standard and supports a quality of service (QoS) facility; and the controller is further adopted to assign to said at least two of said base and enhancement sub-streams QoS parameter sets corresponding to at least two different access categories of the IEEE 802.11 e standard.

However, the above mentioned claimed limitations are well known in the art as evidenced by Choi'IEEE. In particular, Choi'IEEE discloses an apparatus **(i.e. See Figs. 1 and 2 both Contention and Contention Free Period supported in the WLAN an has an AP and mobiles))** wherein the contention-based **(i.e. See Fig. 8 both Contention and Contention Free Period supported in the WLAN)** WLAN system confirms to an IEEE 802.11e standard **(See Page 1151 1st Column Section 1 1st paragraph and abstract)** and supports a quality of service (QoS) facility **(See Fig. 2)**; and the controller **(i.e. every station and access point has a controller)** is further adopted to **(i.e. any element in the QSTA/QAP on page 1153 can be modified to assign streams as "adopted to" is not a positive recitation)** assign to said at least two of said base and enhancement sub-streams**(i.e. any traffic stream is categorized into one of the four access categories 0–3 corresponding to 802.11e standard based on the priority/traffic category info in the MAC SAP – See Fig. 3 and Tables II and III)** QoS parameter sets **(i.e. Table I indicating CWmin, CWmax, TXOP as QoS**

parameter sets for each access category) corresponding to at least two different access categories **(i.e. video, voice, audio)** of the IEEE 802.1 Ie standard **(Choi'IEEE shows in Page 1153 in Fig3 and Fig. 4 and Table III that any stream originating or terminating at an access point or station in a 802.11e compliant WLAN is mapped to an 802.11e access category based on the priority/traffic category info derived from the MAC SAP . Base and enhanced sub-streams are just streams as taught by Ngo'838 and can be assigned to any 802.11e access category along with the associated QoS parameters as shown in Fig. 4)**.

In view of the above, having the apparatus of Ngo'838 and then given the well established teaching of Choi'IEEE, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the apparatus of Ngo'838 as taught by Choi'IEEE, since Choi'IEEE clearly states on page 1151, 1st Column, Section I, paragraphs 1-3 and the absract that the benefit of complying to 802.11e standards is that it provides QoS based traffic control in the MAC layer and further states that all 802.11 WLANs (i.e. including Ngo'838's 802.11a WLAN) are evolving to support QoS using QoS enabled MAC called 802.11(e). It should be clear that 802.11e is a MAC level enhancement of IEEE 802.11a (and b) and therefore Ngo'838's invention can be modified by Choi'IEEE disclosure to obtain end-to-end QoS in the network.

Regarding **claim 17**, it is noted that the limitations of claim 17 corresponds to that of claim 4 as discussed above, please see the Examiner's comments with respect to claim 4 as set forth in the rejection above.

Regarding **claim 23**, it is noted that the limitations of claim 23 corresponds to that of claim 10 as discussed above, please see the Examiner's comments with respect to claim 10 as set forth in the rejection above.

Regarding **claim 26**, Ngo'838 discloses at a receiving station **(Figure 3 depicts a receiving station)** in a contention-based WLAN system **(Ngo'838 states in Column 5, Lines 4-12 that the network shown in Figure 1 is an IEEE802.11 compliant WLAN)**, apparatus adapted to **(i.e. not a positive recitation and apparatus Figure 3 can be modified accordingly)** generate an output data stream **(See Figure 3, output video signal)** corresponding to a first data stream **(the received signal 310 of Figure 3 corresponds to the output of the transmitter 230/235 in Figure 2 which in turn corresponds to the input video of Figure 2 which was identified as the first data stream in claim 1. See Ngo'838 Column 7, Lines 30-67 for detailed explanation)**.applied to a transmitting station in the system, the apparatus comprising:

(A) a processor **(Demux 320 of Figure 3 is coupled to the receiver 310)** coupled to a receiver, the processor adapted to generate two or more sub-streams corresponding to data received by the receiver from the transmitting station **(outputs from the demux 320 constitute the sub-streams heading into the decoders)**; and (B) a first device **(the first device is the layered source decoder 330 of Figure 3)** coupled to the processor and adapted to process the two or more sub-streams generated by the processor **(the demux 320 generates the sub-streams feeding into the N layered decoders)** to generate the output data stream, wherein the transmitting

station **(The transmitting station is represented by Figure 2 in Ngo'838 system)** comprises:

(i) a second device **(Layered Source Encoder 210 in figure 2)** adapted to generate two or more sub-streams corresponding to the first data stream **(input video stream of figure 2 is the first stream)**, wherein the two or more sub-streams corresponding to the first data stream comprise a base sub-stream **(output of base layer encoder in figure 2)** and at least one enhancement sub-stream (outputs of the N enhancement layer encoders); and

(ii) a controller **(Figure 2, element 240)** coupled to a transmitter **(Figure 2, elements 230,235)**, wherein: the transmitter is adapted to transmit data corresponding to the two or more sub-streams generated by the second device **(see output of mux 220 feeding into transmitter 230/235 in Figure 2)**; and

the controller is adapted to

(i) assign priority to each of the two or more sub-streams generated by the second device, wherein at least two of the base and enhancement sub-streams have different priorities **(Ngo'838 in Column 5, Lines 50-55 unequivocally states that the base layer and the enhancement layers are assigned priorities and the priorities are distinct)** and

(ii) apply sub-stream data to the transmitter based on the assigned priority **(Ngo'838 shows in Column 6, Lines 9-15 that the transmitter controller 240 in Figure 2 uses the transport priority settings 250 shown in Figure 2 to transmit data from each sub-stream)**.

Ngo'838 fails to disclose an apparatus wherein the contention-based WLAN system confirms to an IEEE 802.11e standard and supports a quality of service (QoS) facility; and the controller is further adopted to assign to said at least two of said base and enhancement sub-streams QoS parameter sets corresponding to at least two different access categories of the IEEE 802.11 e standard.

However, the above mentioned claimed limitations are well known in the art as evidenced by Choi'IEEE. In particular, Choi'IEEE discloses an apparatus **(i.e. See Figs. 1 and 2 both Contention and Contention Free Period supported in the WLAN an has an AP and mobiles))** wherein the contention-based **(i.e. See Fig. 8 both Contention and Contention Free Period supported in the WLAN)** WLAN system confirms to an IEEE 802.11e standard **(See Page 1151 1st Column Section 1 1st paragraph and abstract)** and supports a quality of service (QoS) facility **(See Fig. 2)**; and the controller **(i.e. every station and access point has a controller)** is further adopted to **(i.e. any element in the QSTA/QAP on page 1153 can be modified to assign streams as "adopted to" is not a positive recitation)** assign to said at least two of said base and enhancement sub-streams**(i.e. any traffic stream is categorized into one of the four access categories 0–3 corresponding to 802.11e standard based on the priority/traffic category info in the MAC SAP – See Fig. 3 and Tables II and III)** QoS parameter sets **(i.e. Table I indicating CWmin, CWmax, TXOP as QoS parameter sets for each access category)** corresponding to at least two different access categories **(i.e. video, voice, audio)** of the IEEE 802.1 le standard **(Choi'IEEE shows in Page 1153 in Fig3 and Fig. 4 and Table III that any stream originating or**

terminating at an access point or station in a 802.11e compliant WLAN is mapped to an 802.11e access category based on the priority/traffic category info derived from the MAC SAP . Base and enhanced sub-streams are just streams as taught by Ngo'838 and can be assigned to any 802.11e access category along with the associated QoS parameters as shown in Fig. 4).

In view of the above, having the apparatus of Ngo'838 and then given the well established teaching of Choi'IEEE, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the apparatus of Ngo'838 as taught by Choi'IEEE, since Choi'IEEE clearly states on page 1151, 1st Column, Section I, paragraphs 1-3 and the absract that the benefit of complying to 802.11e standards is that it provides QoS based traffic control in the MAC layer and further states that all 802.11 WLANs (i.e. including Ngo'838's 802.11a WLAN) are evolving to support QoS using QoS enabled MAC called 802.11(e). It should be clear that 802.11e is a MAC level enhancement of IEEE 802.11a (and b) and therefore Ngo'838's invention can be modified by Choi'IEEE disclosure to obtain end-to-end QoS in the network.

Regarding **claim 29**, Ngo'838 discloses an apparatus, wherein the first and output data streams are hierarchical streams are hierarchical streams **(Figure 2 shows the first data stream as the input video and is converted by the encoder into a hierarchical layered signal and Figure 3 shows an output video signal generated by the decoder from many hierarchical layered signals)** ;

the second device **(Receiver of figure 3)** comprises a partitioner **(demux 320 of figure 3)** adapted to generate, using scalable coding **(the encoder of figure 2 uses layered coding which is scalable coding)**, the two or more sub-streams generated by the second device **(Receiver in Figure 3)**; and the first device **(Transmitter in Figure 2)** comprises a reconstructor **(Mux 220 of Figure 2)** adapted to combine the two or more sub-streams **(outputs of layered source encoder 210 and input of mux 220 in figure 2)** generated by the processor to produce the output data stream **(output of mux 220 in Figure 2)**.

Regarding **claim 31**, Ngo'838 discloses a contention-based WLAN system **(Ngo'838 states in Column 5, Lines 4-12 that the network shown in Figure 1 is an IEEE802.11 compliant WLAN)**, comprising a transmitting station **(Figure 2)** and a receiving station **(Figure 3)**, wherein:

the transmitting station is adapted to: generate two or more sub-streams **(outputs of Layered Source Encoder 210 are sub-streams, figure 2)** corresponding to a first data stream **(incoming input video, figure 2)**, wherein the two or more sub-streams corresponding to the first data stream comprise a base sub-stream **(output of base layer encoder 211, figure 2)** and at least one enhancement sub-stream **(output of N enhancement Layer encoders, figure 2)**; assign priority to each of the two or more sub-streams corresponding to the first data stream, wherein at least two of the base and enhancement sub-streams corresponding to the first data stream have different priorities **(Ngo'838 in Column 5, Lines 50-55 unequivocally states that the**

base layer and the enhancement layers are assigned priorities and the priorities are distinct); and transmit data corresponding to the two or more sub-streams corresponding to the first data stream based on the assigned priority **(Ngo'838 shows in Column 6, Lines 9-15 that the transmitter controller 240 in Figure 2 uses the transport priority settings 250 shown in Figure 2 to transmit data from each sub-stream)**; and

the receiving station **(Figure 3)** is adapted to: generate two or more sub-streams **(outputs of Demux 320 in figure 3)** corresponding to data received from the transmitting station **(output of receiver 310 in figure 3)**; and process the two or more generated sub-streams to generate an output data stream **(output video signal in Figure 3)** corresponding to the first data stream **(input video of Figure 2)**.

Ngo'838 fails to disclose a system wherein the contention-based WLAN system confirms to an IEEE 802.11e standard and supports a quality of service (QoS) facility; and the transmitting station is further adopted to assign to said at least two of said base and enhancement sub-streams QoS parameter sets corresponding to at least two different access categories of the IEEE 802.1 le standard.

However, the above mentioned claimed limitations are well known in the art as evidenced by Choi'IEEE. In particular, Choi'IEEE discloses a system **(802.11e compliant mobile station and access point, QSTA and QAP in Section II on page 1152 Section III,)** wherein the contention-based **(i.e. See Fig. 2)** WLAN system confirms to an IEEE 802.11e standard **(See Page 1152 Section III)** and supports a quality of service (QoS) facility **(ECF)**; and the transmitting station **(i.e. every station**

and access point transmits) is further adopted to **(i.e. any element in the QSTA/QAP on page 1152 can be modified to assign streams as "adopted to" is not a positive recitation)** assign to said at least two of said base and enhancement sub-streams**(i.e. any traffic stream is categorized into one of the four access categories 0–3 corresponding to 802.11e standard based on the priority/traffic category info in the MAC SAP – See Table II and III and Fig. 3)** QoS parameter sets **(i.e. See Table I CWmin, CWmax, TXOP as QoS parameter sets for each access category)** corresponding to at least two different access categories **(i.e. video, voice, audio)** of the IEEE 802.1 le standard **(Choi'IEEE shows in Page 1153 in Fig. 3 and Tables I, II, III that any stream originating or terminating at an access point or station in a 802.11e compliant WLAN is mapped to an 802.11e access category based on the priority/traffic category info derived from the MAC SAP . Base and enhanced sub-streams are just streams as taught by Ngo'838 and can be assigned to any 802.11e access category along with the associated QoS parameters as shown in Fig. 3)**.

In view of the above, having the system of Ngo'838 and then given the well established teaching of Choi'IEEE, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Ngo'838 as taught by Choi'IEEE, since Choi'IEEE clearly states on page 1151, 1st Column, Section I, paragraphs 1-3 and the absract that the benefit of complying to 802.11e standards is that it provides QoS based traffic control in the MAC layer and further states that all 802.11 WLANs (i.e. including Ngo'838's 802.11a WLAN) are evolving to support QoS

using QoS enabled MAC called 802.11(e). It should be clear that 802.11e is a MAC level enhancement of IEEE 802.11a (and b) and therefore Ngo'838's invention can be modified by Choi'IEEE disclosure to obtain end-to-end QoS in the network.

Regarding **claim 35**, Ngo'838 discloses a system wherein the base sub-stream is adopted to (any appropriate structure in the prior art can be modified and adopted to meet the claimed limitation) be decoded independently; and each of the enhancement sub-streams is adopted to (any appropriate structure in the prior art can be modified and adopted to meet the claimed limitation) be decoded based on data contained in the base sub-stream **(This limitation is fundamental to layered or scalable source coding and is not unique to Applicant's invention. Ngo'838 teaches in Column 1, lines 30-40 that the base sub-stream can be decoded by itself and can be of acceptable quality. However Ngo'838 indicates that the enhanced sub-streams make the base sub-stream a better quality video when the enhancement signals are decoded and multiplexed with the base stream to get a meaningful signal as stated in Column 7, lines 59-62. The enhancement sub-streams without the base sub-stream are meaningless from the perspective of obtaining the original signal).**

Regarding **claim 36,** it is noted that the limitations of claim 36 corresponds to that of claim 35 as discussed above, please see the Examiner's comments with respect to claim 35 as set forth in the rejection above.

Regarding **claim 37,** it is noted that the limitations of claim 37 corresponds to that of claim 35 as discussed above, please see the Examiner's comments with respect to claim 35 as set forth in the rejection above.

Regarding **claim 38,** it is noted that the limitations of claim 38 corresponds to that of claim 35 as discussed above, please see the Examiner's comments with respect to claim 35 as set forth in the rejection above.

Regarding **claim 39**, the combination of Ngo'838 and Choi'IEEE discloses a method wherein the step of assigning comprises:

assigning to the base sub-stream a QoS parameter set corresponding to a voice access category of the IEEE 802.11e standard **(Ngo'838 shows base and enhancement layers in Figure 2 and Choi'IEEE shows in Figures 4&5 and Page 216, 2nd Column, Section B, 1st paragraph voice access category as a QoS to be assigned to stream AC3 and has the highest priority commensurate with base layer priority)**;

assigning to a first enhancement sub-stream a QoS parameter set corresponding to a video access category of the IEEE 802.11e standard **(Ngo'838 shows base and enhancement layers in Figure 2 and Choi'IEEE shows in Figures 4&5 and Page 216, 2nd Column, Section B, 1st paragraph video access category as a QoS to be assigned to stream AC2)**;

if there is a second enhancement sub-stream, then assigning to the second enhancement sub-stream a QoS parameter set corresponding to a video probe access category of the IEEE 802.11e standard **(Ngo'838 shows base and enhancement layers in Figure 2 and Choi'IEEE shows in Figures 4&5 video probe access category as a QoS to be assigned to stream AC1)**; and

if there is a third enhancement sub-stream, then assigning to the third enhancement sub-stream a QoS parameter set corresponding to a best effort access category of the IEEE 802.11e standard **(Ngo'838 shows base and enhancement layers in Figure 2 and Choi'IEEE shows in Figures 4&5 best effort access category as a QoS to be assigned to stream AC0)**.

Regarding **claim 40,** it is noted that the limitations of claim 40 corresponds to that of claim 39 as discussed above, please see the Examiner's comments with respect to claim 39 as set forth in the rejection above.

Regarding **claim 41,** it is noted that the limitations of claim 41 corresponds to that of claim 39 as discussed above, please see the Examiner's comments with respect to claim 39 as set forth in the rejection above.

Regarding **claim 42,** it is noted that the limitations of claim 42 corresponds to that of claim 39 as discussed above, please see the Examiner's comments with respect to claim 39 as set forth in the rejection above.

7. **Claims 5, 18, and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ngo'838 in view of Choi'IEEE as applied to claims 1, 14, and 26 respectively above, and further in view of Chaddha et al **(US 5, 768, 535)**.

Regarding **claim 5**, the combination of Ngo'838 and Choi'IEEE fails to expressly disclose a method wherein the first data stream is an embedded stream and step (A) comprises generating the two or more sub-streams using an embedded encoder ***(Note that in the unpublished specification on page 7 in Line 34 that it is stated that a video stream is an embedded stream and in Ngo'838's Figures 2 and 3 it shows video stream entering and exiting the station)***.

However, the above mentioned claimed limitations are well known in the art as evidenced by Chaddha'535. In particular, Chaddha'535 discloses a method wherein the first data stream is an embedded stream **(Figure 1, element 10 is the source and output of element 60 is an embedded stream as illustrated in Column 4, Lines 1-15)** and step (A) comprises generating the two or more sub-streams using an embedded encoder **(Figure 1, element 60 is a scalable video encoder and should be noted that in the unpublished version of the specification on page 7 in line 36 that the Applicant readily admits that a scalable video encoder is the same as embedded encoder. Further Chaddha'535 discloses in Column 5, Lines 13-22 that the encoder 60 of Figure 1 creates a base layer and enhancements layers generating the sub-streams required).**

In view of the above, having the method of Ngo'838 and Choi'IEEE and then given the well established teaching of Chaddha'535, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Ngo'838 and Choi'IEEE as taught by Chaddha'535, since Chaddha'535 clearly states in Column 4, Lines 42-55 that use of a scalable video encoder allows hosting different decoders having various spatial and temporal resolutions.

Regarding **claim 18**, it is noted that the limitations of claim 18 corresponds to that of claim 5 as discussed above, please see the Examiner's comments with respect to claim 5 as set forth in the rejection above.

Regarding **claim 30**, the combination of Ngo'838 and Choi'IEEE fails to expressly disclose wherein: the first and output data streams are embedded streams; the second device comprises an embedded encoder adapted to generate the two or more sub-streams generated by the second device; and the first device comprises an embedded decoder adapted to process the two or more sub-streams generated by the processor to produce the output data stream. ***(Note that in the unpublished specification on page 7 in Line 34 that it is stated that a video stream is an embedded stream and in Ngo'838's Figures 2 and 3 it shows video stream entering and exiting the station)***.

However, the above mentioned claimed limitations are well known in the art as evidenced by Chaddha'535. In particular, Chaddha'535 discloses an apparatus wherein: the first and output data streams are embedded streams **(Figure 1, element 10 is the source and output of element 60 is an embedded stream as illustrated in Column 4, Lines 1-15 and in Figure 3 the output of the receiver/decoder is shown**

as video a form of embedded stream); the second device **(Server in Figure 1 has the embedded/scalable video encoder 60 and output of element 60 is an embedded stream as illustrated in Column 4, Lines 1-15)** comprises an embedded encoder adapted to generate the two or more sub-streams generated by the second device **(output of element 60 is an embedded stream as illustrated in Column 4, Lines 1-15 and the sub-streams are shown in figure 2)**; and the first device comprises an embedded decoder **(Figure 1, element 40 is embedded decoder as illustrated in Column 8, Lines 28-67)** is the decoder adapted to process the two or more sub-streams generated by the processor **(Figure 1, element 145)** to produce the output data stream **(Figure 3, elements 480, 490, and 550 are the different output data stream at different resolution)**. I

In view of the above, having the apparatus based on the combination of Ngo'838 and Choi'IEEE and then given the well established teaching of Chaddha'535, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the apparatus based on the combination of Ngo'838 and Choi'IEEE as taught by Chaddha'535, since Chaddha'535 clearly states in Column 4, Lines 42-55 that use of a scalable video encoder allows hosting different decoders having various spatial and temporal resolutions.

8. **Claims 6, 12, 13, 19, 24, and 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ngo'838 in view of Choi'IEEE as applied to claims 1 and 14 respectively above, and further in view of Eshet et al (US 7, 116, 717 B1).

Regarding **claim 6**, the combination of Ngo'838 and Choi'IEEE fails to disclose a method further comprising, for each sub-stream, accumulating data corresponding to the sub-stream in a corresponding transmission queue.

However, the above mentioned claimed limitations are well known in the art as evidenced by Eshet'717. In particular, Eshet'717 discloses a method further comprising, for each sub-stream **(Eshet'717 shows in Figure 8, element 70 sub-streams generator and generates a base layer, Layer 1, and k enhancement layers)**, accumulating data corresponding to the sub-stream **(For each sub-stream k there is a corresponding transmission queue 60_k)** in a corresponding transmission queue **(See Eshet'717 in Column 22, Lines 6-18 and 25-30 states the limitation verbatim)**.

In view of the above, having the method based on the combination of Ngo'838 and Choi'IEEE and then given the well established teaching of Eshet'717, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method based on the combination of Ngo'838 and Choi'IEEE as taught by Eshet'717, since Eshet'717 clearly states in Column 1, Lines 45-62 that the modification results in providing a system and method for efficiently reconstructing a media stream from various representations of the media stream.

Regarding **claim 12**, the combination of Ngo'838 and Choi'IEEE fails to disclose a method further comprising: generating two or more sub-streams corresponding to a second data stream, wherein the two or more sub-streams corresponding to the second

data stream comprise a corresponding base sub-stream and at least one corresponding enhancement sub-stream: assigning priority to each of said sub-streams corresponding to the second data stream; and for each of the two or more sub-streams corresponding to the first data stream and the two or more sub-streams corresponding to the second data stream, accumulating data corresponding to the sub-stream in a corresponding transmission queue, wherein at least one of the transmission queues receives sub-stream data corresponding to each of the first and second data streams.

However, the above mentioned claimed limitations are well known in the art as evidenced by Eshet'717. In particular, Eshet'717 discloses a method further comprising: generating two or more sub-streams corresponding to a second data stream **(Eshet'717 in Figure 13A media streams A & B as the first and second data streams respectively)**, wherein the two or more sub-streams corresponding to the second data stream **(Eshet'717 shows in Figure 13B media stream B which is the second data stream being partitioned into four sub-streams)** comprise a corresponding base sub-stream **(Figure 13B shows Q=20 as the base sub-stream)** and at least one corresponding enhancement sub-stream **(Figure 13B shows three enhancement streams, Q=10, Q=5, and Q=1)**; assigning priority to each of said sub-streams corresponding to the second data stream **(In Figure 13B all sub-streams have a Q value which is a quantization value and is a form of QoS parameter in Column 24, Lines 40-45)**; and

for each of the two or more sub-streams corresponding to the first data stream and the two or more sub-streams corresponding to the second data stream,

accumulating data corresponding to the sub-stream in a corresponding transmission queue **(In Figure 13A-D Queues 210, 212, 214, and 216 accumulate data belonging to a specific sub-stream)**,

wherein at least one of the transmission queues receives sub-stream data corresponding to each of the first and second data streams **(In Figures 13A-D, sub-streams from media streams A-C..M are stored in queues 210, 212, 214, and 216. For further details see Column 25, Lines 44-67 and Column 26, Lines 1-28)**.

In view of the above, having the method based on the combination of Ngo'838 and Choi'IEEE and then given the well established teaching of Eshet'717, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method based on the combination of Ngo'838 and Choi'IEEE as taught by Eshet'717, since Eshet'717 clearly states in Column 1, Lines 45-62 that the modification results in providing a system and method for efficiently reconstructing a media stream from various representations of the media stream.

Regarding **claim 13**, the combination of Ngo'838, Choi'IEEE and Eshet'717 discloses a method wherein at least one sub-stream corresponding to the first data stream and at least one sub-stream corresponding to the second data stream have the same priority **(In Eshet'717's system as shown in Figure 8, queues $60_1 \ldots 60_k$ have specific priorities ranging from P1 to PK as further illustrated in Column 25, Lines 25-30. hence the sub-streams from the different data streams in the different queues 210-124 and 216 have the same priority)** .

Regarding **claim 19**, it is noted that the limitations of claim 19 corresponds to that of claim 6 as discussed above, please see the Examiner's comments with respect to claim 6 as set forth in the rejection above.

Regarding **claim 24**, it is noted that the limitations of claim 24 corresponds to that of claim 12 as discussed above, please see the Examiner's comments with respect to claim 12 as set forth in the rejection above.

Regarding **claim 25**, it is noted that the limitations of claim 25 corresponds to that of claim 13 as discussed above, please see the Examiner's comments with respect to claim 13 as set forth in the rejection above.

9. **Claims 7, 9, 20, and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ngo'838 in view of Choi'IEEE and Eshet'717 as applied to claims 6 and 19 above, and further in view of Balachandran et al (US 7, 194, 000 B2).

Regarding **claim 7**, the combination of Ngo'838, Choi'IEEE and Eshet'717 fails to expressly disclose a method, further comprising, for each queued data packet, (i) running a timer having a threshold value and (ii) discarding the data packet without transmission, when the timer reaches the threshold value.

However, the above mentioned claimed limitations are well known in the art as evidenced by Balachandran'000. In particular, Balachandran'000 discloses a method further comprising, for each queued data packet **(Balachandran'000 discloses queues 140, 140', and 140" in Figure 2 and each queue have unique priority as illustrated in Column 5, Lines 10—28)**, (i) running a timer having a threshold value

(**Balachandran'000 in Column 8, Lines 47-50 and Column 9, Lines 8-12 and Figure 6, step 502 shows for each priority there is a unique timer and Balachandran'000 reiterates the same fact in Column 10, Lines 27-33 that each packet in the prioritized transmission queues 140, 140', and 140'' of Figure 2 has a unique timer T1. Every timer's set value to expire is a threshold)** and (ii) discarding the data packet without transmission, when the timer reaches the threshold value **(Balachandran'000 shows in Column 9, Lines 26-32 and Column 10, Lines 14-20 that when Timer T1 reaches its threshold, i.e. when the timer expires, the packet is dropped signified by its removal from register S_i. See Figure 7, steps 610 and 612 also)**.

In view of the above, having the method based on the combination of Ngo'838, Choi'IEEE, and Eshet'717 and then given the well established teaching of Balachandran'000, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method based on the combination of Ngo'838, Choi'IEEE, and Eshet'717 as taught by Balachandran'000, since Balachandran'000 clearly states in Column 1, Lines 50-54 and Column 2, Lines 1-34 that the modification allows a quick and less complicated system for compensating changes in the wireless communication channel so as to guarantee the quality of service of the transmission.

Regarding **claim 9**, the combination of Ngo'838, Choi'IEEE, Eshet'717 and Balachandran'000 discloses a method wherein timers corresponding to different queues have different threshold values. **(Balachandran'000 in Column 8, Lines 47-50 and**

Column 9, Lines 8-12 and Figure 6, step 502 shows for each priority there is a unique timer and Balachandran'000 reiterates the same fact in Column 10, Lines 27-33 that each packet in the prioritized transmission queues 140, 140', and 140'' of Figure 2 has a unique timer T1. Every timer's set value to expire is different resulting in different thresholds for different timers associated with the differently prioritized queues).

Regarding **claim 20**, it is noted that the limitations of claim 20 corresponds to that of claim 7 as discussed above, please see the Examiner's comments with respect to claim 7 as set forth in the rejection above.

Regarding **claim 22**, it is noted that the limitations of claim 22 corresponds to that of claim 9 as discussed above, please see the Examiner's comments with respect to claim 9 as set forth in the rejection above.

10. **Claim 8 and 21** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ngo'838 in view of Choi'IEEE, Eshet'717 and Balachandran'000 as applied to claims 7 and 20 respectively above, and further in view of Li et al (US 6, 898, 313 B2).

Regarding **claim 8**, the combination of Ngo'838, Choi'IEEE, Eshet'717 and Balachandran'000 fails to expressly disclose wherein, for each enhancement packet, the timer starts when a corresponding base packet is transmitted. **(Since Balachandran'000 discloses each queue has a unique timer and priority and the timer is set when the packet is released for transmission, indeed it teaches the limitation indirectly)**

However, the above mentioned claimed limitations are well known in the art as evidenced by Li'313. In particular, Li'313 discloses a method wherein, for each enhancement packet, the timer starts when a corresponding base packet is transmitted (**In Column 4, Lines 3-10 and 19-21 Li'313 discloses that scheduler 30 of Figure 1 transmits a base packet and continues to send enhancement packets up to a timer expires and the timer expires at some maximum time threshold and the timer is set or the maximum time is counted from the point the base layer packet is sent.)**.

In view of the above, having the method based on the combination of Ngo'838, Choi'IEEE, Eshet'717, and Balachandran'000 and then given the well established teaching of Li'313, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method based on the combination of Ngo'838, Choi'IEEE, Eshet'717, and Balachandran'000 as taught by Li'313, since Li'313 clearly states in Column 1, Lines 50-60 and Column 2, 48-55 that the modification results in a scalable data coding system that produces good quality with less complicated coding operation and uses less computing power.

Regarding **claim 21**, it is noted that the limitations of claim 21 corresponds to that of claim 8 as discussed above, please see the Examiner's comments with respect to claim 8 as set forth in the rejection above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HABTE MERED whose telephone number is (571)272-

6046. The examiner can normally be reached on Monday to Friday 10:30AM to 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung S. Moe can be reached on 571 272 7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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